

ABSTRACT OF THE DISCLOSURE

[0042] A method for forming an aluminide coating on a turbine engine component having an external surface and an internal cavity defined by an internal surface that is connected to the external surface by at least one hole. The method is conducted in a vapor coating container having a hollow interior coating chamber, and includes the steps of loading the coating chamber with the component to be coated; flowing a tri-alkyl aluminum coating gas into the loaded coating chamber at a specified temperature, pressure, and time to deposit an aluminum coating on the external and internal surfaces of the component; and heating the component in a nonoxidizing atmosphere at a specified temperature and time to form an aluminide coating on the external and internal surfaces. The coated component is typically then maintained at an elevated temperature in the presence of oxygen to form an oxide coating on the external and internal surfaces of the component. In one embodiment, the turbine engine component is a turbine engine blade having an external surface and an internal cooling cavity having an internal surface that is connected to the external surface by cooling holes.